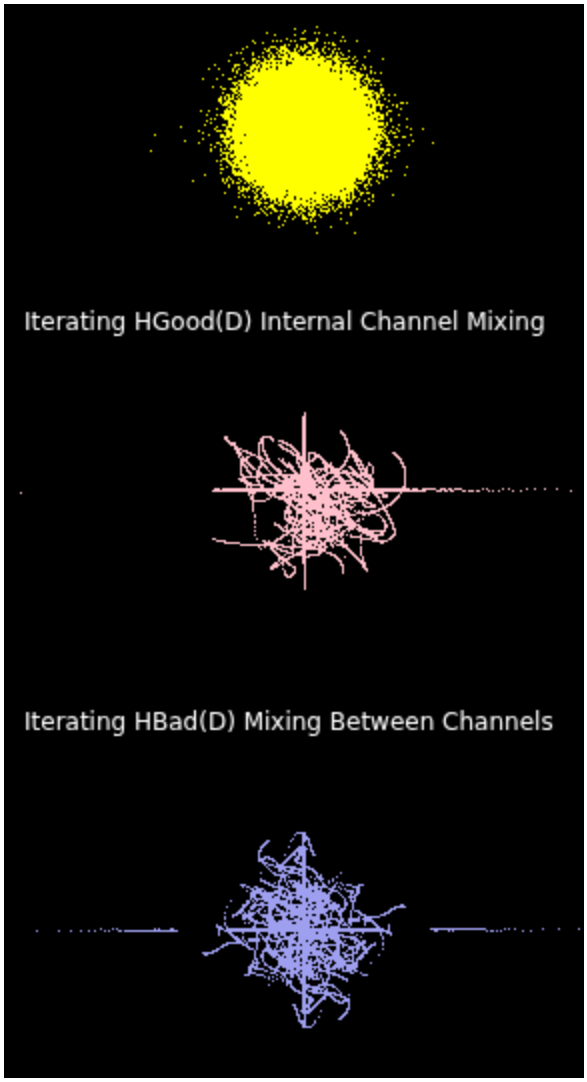

What the three diagrams show

You are looking at three versions of the *same initial signal* evolving over time under slightly different rules. Each point is a pair of values from the signal, and over time those points trace out where the system “goes” in its state space.

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1. Top diagram — “Iterating HD” (yellow)

This is the most complete and energetic picture.

- The points quickly spread out and begin to fill a rounded, cloud-like region.

- Over time, that cloud becomes dense and fairly uniform.
- There are no obvious gaps or preferred directions.

What this means in plain terms:

> The system is exploring *all possible directions* in a balanced way.

It behaves like a well-mixed process:

- nothing is preserved
- nothing is restricted
- the signal is being thoroughly scrambled

This is why it looks like a “Gaussian cloud” — everything is being averaged and mixed from many directions.

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2. Middle diagram — “HGood(D)” (pink)

This one looks more structured and constrained.

- The points still move and spread, but not everywhere.
- The cloud may look stretched, layered, or confined to certain regions.
- It often feels like there are “hidden lanes” or substructures.

What’s happening:

> The system is mixing, but only **within separate internal channels**.

So:

- movement happens, but within boundaries
- parts of the system don’t interact with other parts
- the full space is *not* explored

A good way to picture it:

> It’s like two separate rooms where people are moving around freely—but nobody crosses between rooms.

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3. Bottom diagram — “HBad(D)” (blue)

This one behaves quite differently again.

- Points tend to jump or oscillate between regions
- You may see mirrored patterns or back-and-forth motion
- The spread is limited and doesn't fill out smoothly

What's happening:

> The system mainly **moves between channels**, but doesn't mix well inside them.

So:

- information is being exchanged between parts
- but not fully blended within each part
- the motion can feel "jumpy" or cyclical

A useful picture:

> People are constantly switching rooms—but not really moving around much once they get there.

The big picture

All three diagrams come from the same basic ingredients, but:

- **HD (top)** does *both kinds of mixing*:
  - within parts
  - between parts
    → result: full exploration of the space
- **HGood(D) (middle)**:
  - mixes within parts only
    → result: partial exploration
- **HBad(D) (bottom)**:
  - mixes between parts only
    → result: limited, often oscillatory exploration

Final intuition

Think of the system as having hidden "channels":

- The top diagram breaks all barriers → everything mixes → full cloud
- The middle diagram keeps channels separate → structured cloud
- The bottom diagram swaps between channels → motion without full spreading

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That's why only the top one looks like it visits the full Gaussian state space:

> it's the only one that combines **all the ways of mixing** into a single process.

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